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May 30, 2019

Licensing
Nunavut Water Board
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Re: April 2019 – Monthly Monitoring Report for Water Licence 2AM-DOH1335

This report is comprised of monitoring requirements as set out in Part I and Schedule I of water licence 2AM-DOH1335 Amendment 2, and additional requirements from CIRNAC.

During the subject period of this report the focus of activities at Doris North was underground mining, construction, ore processing, water management and environmental compliance. No activities were conducted at Madrid under this licence in April.

Sampling locations monitored under this licence (seasonally or when facilities are operational) are provided in Figure 5 at the end of this report. Madrid infrastructure has not yet been constructed. Monitoring locations associated with Madrid infrastructure (MMS) will be established with the Inspector as per Part I Item 3 once these facilities have been constructed.

In April TMAC continued with the Doris Crown Pillar Recovery activities. These activities included underground blasting and removal of waste rock and ore via the underground workings. No surface blasting was conducted in April. Backfilling portions of the crown pillar area continued.

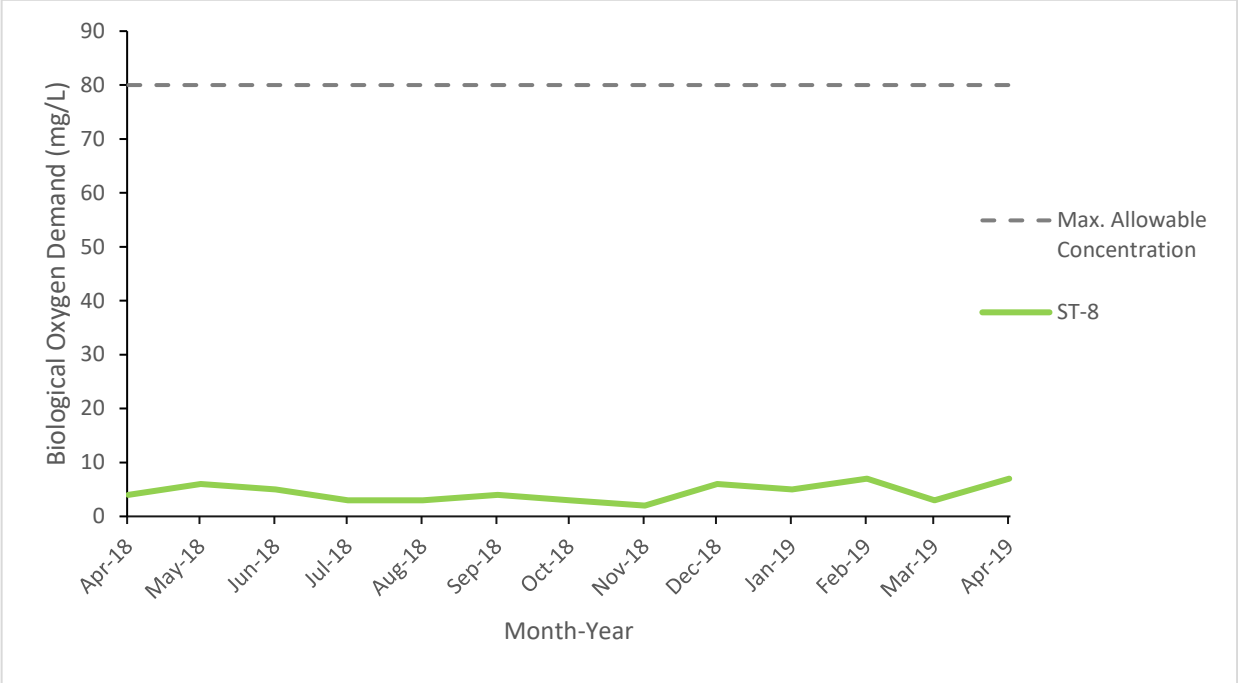
Site Wide Water Quality Monitoring Program (Part I Item 3 and Schedule I)

Water quality sampling was conducted in April at monitoring stations identified in Schedule I of the licence (ST-1 through ST-13, TL-1 through TL-12 and MMS-1 through MMS-10). Water quality samples were not collected for monitoring stations that were inactive during the month being reported (e.g., facilities that had not yet been constructed, were frozen during the month, or were not operationally active).

All parameters were compared to the applicable effluent quality limits outlined in Part F of the licence. No exceedances of effluent quality limits were observed in any samples collected this month. Results of all water quality monitoring are provided in Appendix A attached to this report.

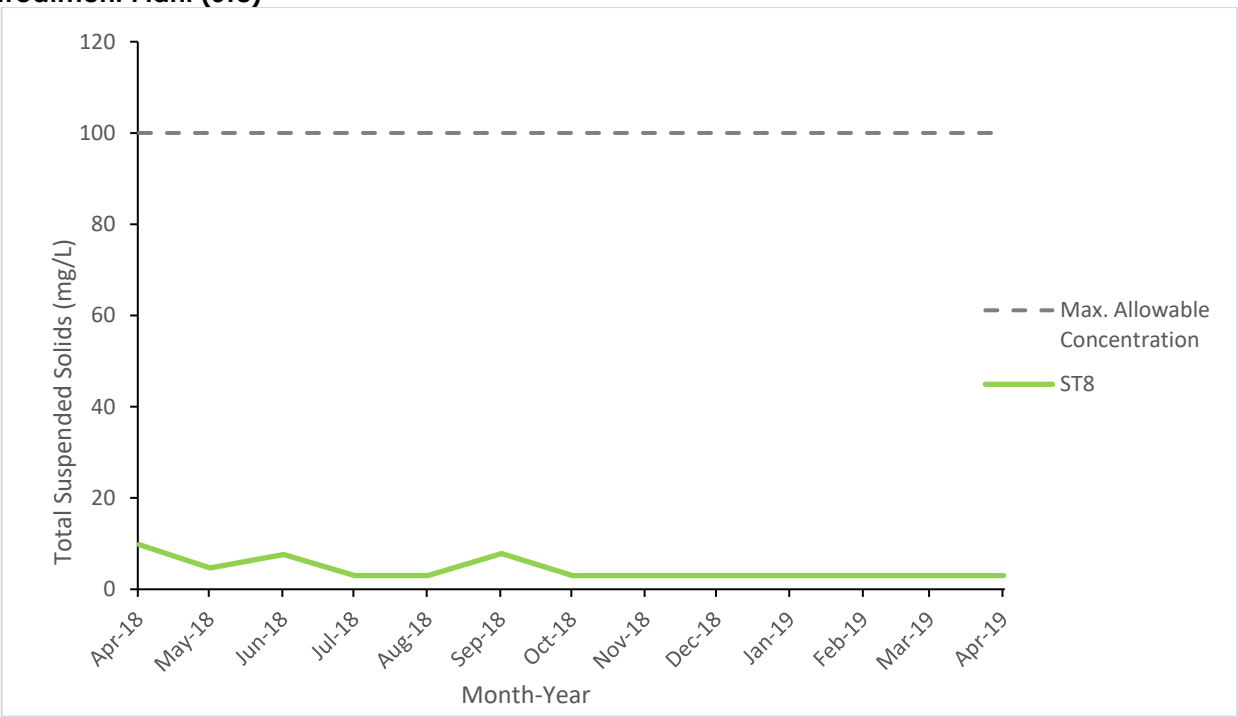
Figure 1 and 2 illustrates effluent quality characteristics for parameters of interest at select monitoring stations.

Figure 1. Biological Oxygen Demand Results Consistently Below Discharge Criteria for Wastewater Treatment Plant (ST8)



Note: Maximum Average Concentration as per Part F Item 4(b).

Figure 2. Total Suspended Solids Results Consistently Below Discharge Criteria for Wastewater Treatment Plant (ST8)



Note: Maximum Average Concentration as per Part F Item 4(b).

Flow and Volume Measurements (Part F, Part I and Schedule I)

Table 1. Effluent discharge, April 2019

Facility	Station Code	Discharge Volume (m^3)	Exceedances of Discharge Criteria	Discharge Location	Licence Reference
Doris Sedimentation Pond	ST-1	0	N/A	Tailings Impoundment Area	Part F Item 17
Doris Contact Water Pond #1	ST-2	0	N/A	Tailings Impoundment Area	Part F Item 17, 18(a)
Non-Hazardous Landfill Sump	ST-3	0	0	Facility not constructed	Part F Item 18(a)
Landfarm Sump	ST-4	0	0	Tundra Discharge 13W 432450 7559600	Part F Item 18(b)
Doris Plant Site Fuel Storage Area	ST-5	0	0	Tundra Discharge	Part F Item 18(b)
Rob Bay Single 5ML Fuel Storage Area	ST-6a	0	0	Tundra Discharge	Part F Item 18(b)
Rob Bay Fuel Storage and Containment Berm	ST-6b	0	0	Tundra Discharge	Part F Item 18(b)
Doris Sewage Treatment Plant, Effluent	ST-8	1,300	0	Tundra Discharge 13W 432933 7559057	Part F Item 5(b-c)
Doris Sewage Treatment Plant, Sludge	N/A	28.0	N/A	Tailings Impoundment Area	Part I Item 5(f)
Doris Reagent and Cyanide Storage Facility Sump	ST-11	0	N/A	Tailings Impoundment Area	Part F Item 17
Doris Contact Water Pond #2	ST-13	0	N/A	Facility not constructed	Part F Item 17
Doris Mine Water Discharge	TL-12	23,432	N/A	Tailings Impoundment Area	
Madrid North Contact Water Pond	MMS-1	0	N/A	Facility not constructed	Part F Item 17, 18(a)
Madrid South Primary Contact Water Pond	MMS-2	0	N/A	Facility not constructed	Part F Item 17, 18(a)
Madrid South Secondary Contact Water Pond	MMS-3	0	N/A	Facility not constructed	Part F Item 17, 18(a)
Madrid South Fuel Storage Facility	MMS-5	0	0	Facility not constructed	Part F Item 18(b)
Madrid Brine Mixing Facility	MMS-6	0	N/A	Facility not constructed	
Madrid North Connector	MMS-7	0	N/A	No mining occurring at this time	
Madrid North Fuel Storage Facility	MMS-8	0	0	Facility not constructed	Part F Item 18(b)
Madrid Mine Water Discharge	MMS-10	0	N/A	Facility not constructed	

Records of visual monitoring of discharge to tundra are maintained on file as per Part I Item 11.

Table 2. Discharge from TIA, April 2019

Month	Number of days of discharge	Discharge Volume (m^3)	Exceedances of Discharge Criteria*
January	0	0	0
February	0	0	0
March	0	0	0
April	0	0	0
Annual Cumulative	**0**	**0**	**0**

* Discharge criteria as outlined in *Metal and Diamond Mining Effluent Regulations*.
Acute Lethality testing conducted as outlined in Part F Item 22 and Part I Item 14

Table 3. Water usage, April 2019

Month	Windy Lake (ST-7A)	Doris Lake (ST-7)					Total Usage
	Domestic Water (m^3)	Domestic Water (m^3)	Surface Exploration (m^3)	Industrial Usage* (m^3)	Dust Suppression (m^3)	Winter Track (m^3)	
January	1,438	0	0	16	0	432	1,886
February	1,341	0	0	48	0	275	1,664
March	1,403	0	0	77	0	0	1,480
April	1,422	0	0	20	0	2	1,444
Annual Total	5,604	0	0	161	0	709	6,474
Annual Allowance	**43,800**			**1,930,000**		**60,000**	**2,033,800**

As permitted by water licence 2AM-DOH1335 Part E Item 1 and Part I Item 5(a)(b).
* Includes industrial uses such as mining, core processing, concrete batching, etc.

Table 4. Volume of Reclaim Water from the TIA for Process Water, April 2019

Month	Reclaim Water (m^3) *
January	64,572
February	57,207
March	69,824
April	60,913
Annual Cumulative	**252,516**

* As per Part E Item 5 and Part I Item 5(c)
Numbers rounded to the nearest cubic meter.

Table 5. Waste Rock and Process Volumes, April 2019

Month	Waste Rock Management					Underground Void Space			Ore Processing and Tailings Management		
	Produced from Mining Activity (tonnes)	Backfilled Directly to Underground Stopes (tonnes)	Returned Underground from Temporary Waste Rock Pile* (tonnes)	Moved to Temporary Waste Rock Pile (tonnes)*	Cumulative on Temporary Waste Rock Pile (tonnes)*	Volume Created from Mining Activities (tonnes)	Cumulative Volume Available for Backfill (tonnes)	Cumulative Volume Available for Backfill (m^3)	Quantity of Ore Processed** (tonnes)	Total Dry Tailings Placed in TIA** (tonnes)	Total Dry Detoxified Tailings Placed Underground** (tonnes)
December Balance	-	-	-	-	838,227	-	1,287,608	510,092	-	-	-
January	37,535	29,226	8,326	8,309	838,210	27,861	1,259,747	523,016	45,387	44,133	1,054
February	34,681	29,440	76,020	5,241	767,431	-27,625	1,287,372	540,300	47,479	46,178	1,261
March	35,005	22,895	82,592	12,110	696,949	-31,976	1,319,347	558,377	52,083	50,519	1,576
April	33,999	39,184	54,683	-5,185	637,081	-38,889	1,280,458	564,018	40,046	38,750	773
Cumulative Total	141,220	120,745	221,621	20,475	637,081	-70,629	1,280,458	564,018	184,995	179,580	4,664

* As per Part I Item 5(d)(e)

** As per Part I Item 6

Note: Void space created from mining activities is determined as the sum of the initial void space as calculated in March 2017 and void space created each month from mining activities. A negative volume of void space created in a month indicates that a higher volume of waste rock and detoxified tailings was returned underground compared to the volume of void space created from new mining activities.

Table 7. Doris Lake Water Level (ST-12), April 2019

Month	Minimum Water Level (masl)	Maximum Water Level (masl)	Mean Water Level (masl)	Monthly Water Level Variation (masl)**	Comparison of Mean Water Level from Month to Month (masl)^	Low Action Level Trigger (masl)*
January	21.726	21.747	21.739	0.011	0.019	21.347
February	21.725	21.743	21.736	0.018	-0.003	21.347
March	21.723	21.743	21.733	0.020	-0.003	21.347
April	21.735	21.757	21.751	0.022	0.018	21.347

As per Part I Item 1 and outlined in the *Hope Bay Project Aquatic Effects Monitoring Plan*.

* Low action level trigger is relative to the average water level value (September 10-30, 2018) measured in Doris Lake. Low action level trigger (-0.42 m) outlined in Section 5.4 of the Doris Aquatic Effects Monitoring Plan, September 2016.

** Monthly Water Level Variation is calculated as the difference between the Maximum Water Level and the Minimum Water Level measured during the month.

^ Comparison of the change in water level from month to month. This value is calculated by subtracting the Mean Water Level of the current month from the Mean Water Level of the previous month (e.g. February Mean Water level - January Mean Water level). A positive value from this calculation indicates a rise in water level since the previous month; a negative value from this calculation indicates a drop in water level since the previous month.

Waste Management (Part F Item 10 and 11)

Empty cargo aircraft were utilized for waste backhaul from the Doris Camp. A total of 25 totes and 20 drums (approximately 29 m^3) of waste oil, 9 totes (approximately 9 m^3) of waste glycol, and 1 crate (approximately 1 m^3) of incinerator/burn pan ash that did not meet the criteria for Class II disposal in a landfill were transported to KBL Environmental in Yellowknife to arrange for final remediation and/or disposal this month.

In April, 130 mega bags (approximately 130 m^3) of hydrocarbon contaminated soil which had been removed from the Boston Camp Landfarm in 2017 was transported to Doris Camp via winter track. This material was disposed of as underground backfill in the Doris Mine as per the Hope Bay Project Hazardous Waste Management Plan.

Summary of Assessments of Water Balance and Water Quality Model (Part F Item 24 and Part I Item 12 c)

Average monthly water quality, hydrologic, and climatic monitoring data were collected while in operations during April. Data will contribute to the assessment of the water and load balance model, and will be compared to the predicted water quality and elevation within the TIA and will be reported in the annual report for 2019.

Thermal Monitoring (Part I Items 7, 8 and Schedule I)

Thermal monitoring undertaken as per Part I Items 7, 8 and Schedule I is reported in the annual Geotechnical Report.

Site Freshet and Precipitation Conditions (Part I Item 12(d))

Visual monitoring was conducted of the diversion berm and site runoff structures. No issues were identified as these facilities were frozen.

Incident Reporting

Spill #19-165 – On April 21, 2019, an employee was attempting to remove a mega-bag of cement mix out of a sea-can with a telehandler. While removing the mega-bag, it caught a sharp edge on the inside of the sea-can. As a result, approximately 375kg of the mega-bag spilled onto the ground in front of the sea-can. The majority of the contents remained contained within the mega-bag.

The cement bag was placed into another sea-can while the hole was being repaired and the area being cleared. Contaminated snow was removed with shovels and a Bobcat, placed into another mega-bag, and taken to the Tailings Impoundment Area for disposal. Figure 3 below shows the area pre- and post-cleanup.

The following preventative actions were identified in order to reduce the likelihood of a reoccurrence:

- A spotter must be used for accessing and replacing material in sea-cans;
- Spotter and operator will properly assess challenges of area prior to making pick. During this time, they will also discuss the signal language to be used that will allow them to best support the move.

Figure 3. Spill #19-165 Pre- and Post-Cleanup

Spill location pre-cleanup

Spill location post-cleanup

Spill #19-177 - On April 26, 2019, an employee was attempting to remove a plastic tote of ethylene glycol 60-40 coolant from a sea-can with a telehandler. While loading the tote, the forks of the telehandler shifted and punctured the tote. Approximately 950L of coolant was released into the sea-can and onto the camp pad in front of the sea-can doors.

Spill pads were placed to absorb spilled coolant. Contaminated snow was removed by hand and with equipment. This included material that migrated beneath the sea-cans. The sea-cans were moved and the contaminated material was excavated from the camp pad surface. Contaminated material was placed into drums and taken to the waste management facility to be stored for offsite disposal.

The following corrective actions were identified in order to reduce the likelihood of a reoccurrence:

- A spotter must be used for accessing and replacing material in sea-cans.
- Spotter and operator will agree on a signal language to be used during pick.
- Spotter and operator will assess the material and the location for potential challenges associated with the pick. Challenges will be properly mitigated.
- The procedure for the unloading of totes will be thoroughly reviewed and gone over with the team members.

Figure 4. Spill #19-165 Pre- and Post-Cleanup

Spill location pre-cleanup

Spill location during clean up (left) and post-cleanup

Should there be any questions regarding this monthly report, please contact enviro@tmacresources.com.

Yours sincerely,

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Figure 5. 2AM-DOH1335 SNP Monitoring Locations